

What is claimed is:

1. A data processing apparatus for performing a second quantization on data to be processed and obtained by  
5 performing inverse quantization after performing a first quantization by a first quantization scale, comprising:

a quantization scale generation means for generating a second quantization scale based on the first quantization scale; and

10 a quantization means for performing the second quantization on the data to be processed based on the second quantization scale generated by the quantization scale generation means.

2. A data processing apparatus as set forth in claim 1,  
15 wherein:

the quantization scale generation means generates the second quantization scale based on the first quantization scale for each of a plurality of block data composing image data as the data to be processed; and

20 the quantization means performs the second quantization on the block data based on the second quantization scale generated by the second quantization scale generation means in accordance with the block data.

3. A data processing apparatus as set forth in claim 2,  
25 wherein the quantization scale generation means generates

index data indicating a complexity degree of the block data to be processed based on the first quantization scale used in the first quantization for obtaining the block data to be processed or the block data around the  
5 block data, and generates the second quantization scale of the block data to be processed based on the index data.

4. A data processing apparatus as set forth in claim 3, wherein:

when two block data  $MBm(i)$  and  $MBm(i+1)$   
10 respectively corresponding to adjacent two block image positions in the vertical direction in the image data are subjected to the first quantization based on the first quantization scales  $Qm(i)$  and  $Qm(i+1)$ , respectively,  
the quantization scale generation means calculates  
15 the second quantization scale  $Q(i)$  to be used when performing the second quantization on the block data  $MBm(i)$  based on both of the first quantization scales  $Qm(i)$  and  $Qm(i+1)$  and the second quantization scale  $Q(i+1)$  to be used when performing the second quantization  
20 on the block data  $MBm(i+1)$ ; and

the quantization means performs the second quantization on the block data  $MBm(i)$  based on the second quantization scale  $Q(i)$  calculated by the quantization scale generation means and performs the second  
25 quantization on the block data  $MBm(i+1)$  based on the

second quantization scale  $Q(i+1)$ .

5. A data processing apparatus as set forth in claim 4, furthermore comprising:

a control means for generating first field data  
5 configured based on block data  $MBjt(i)$  obtained by performing the second quantization on the block data  $MBm(i)$ ; and second field data to form a pair with the first field data, configured based on block data  $MBjb(i)$  obtained by performing the second quantization on the  
10 block data  $MBm(i+1)$ , in the case where field coding at a picture level is performed on the image data.

6. A data processing apparatus as set forth in claim 4, further comprising:

a control means for generating field data  
15 configured based on block data  $MBj(i)$  and  $MBj(i+1)$  obtained respectively by performing the second quantization on the block data  $MBm(i)$  and  $MBm(i+1)$  in the case where field coding in unit of the two block data  $MBm(i)$  and  $MBm(i+1)$  is performed on the image data.

20 7. A data processing apparatus as set forth in claim 4, wherein:

the quantization scale generation means specifies a quantization scale  $Qa$  based on a predetermined function using the first quantization scales  $Qm(i)$  and  $Qm(i+1)$  as  
25 arguments, and calculates the second quantization scales

$Q(i)$  and  $Q(i+1)$  based on the specified quantization scale  $Q_a$ .

8. A data processing apparatus as set forth in claim 7, wherein:

5       the quantization scale generation means specifies the quantization scale  $Q_a$  based on the function using the smaller of the first quantization scales  $Q_m$  and  $Q_m(i+1)$  as a quantization scale  $Q_a$ .

9. A data processing apparatus as set forth in claim 7, 10 wherein:

the quantization scale generation means specifies the quantization scale  $Q_a$  based on the function for calculating a quantization scale  $Q_a$  by calculating  $(Q_m(i) + Q_m(i+1) + 1) / 2$ .

15 10. A data processing apparatus as set forth in claim 7, wherein:

the quantization scale generation means  
calculates an average value  $ave$  of the quantization scales  $Q_a$  of all of the block data in field data or frame data, to which the block data to be 20 processed belongs,

calculates an activity  $N_{act}$  by dividing the quantization scale  $Q_a$  of the block data to be processed by the average value  $ave$ , and

25 calculates the second quantization scale of the

block data to be processed based on the activity Nact.

11. A data processing method for performing second quantization on data to be processed and obtained by performing inverse quantization after performing first  
5 quantization by a first quantization scale, including:

a first step of generating a second quantization scale based on the first quantization scale; and

a second step of performing the second quantization on the data to be processed based on the second  
10 quantization scale generated in the first step.

12. A coding apparatus, comprising:

a decoding means for generating decoding data by decoding coding data generated by performing coding on motion image data by a first coding method and obtained  
15 by performing first quantization based on a first quantization scale in the coding step;

a quantization scale generation means for generating a second quantization scale based on the first quantization scale; and

20 a quantization means for performing second quantization on the decoding data based on the second quantization scale generated by the quantization scale generation means in a step of performing coding in a second coding method which is different from the first  
25 coding method on the decoding data generated by the

decoding means.

13. A data processing apparatus for performing second quantization on data to be processed and obtained by performing inverse quantization after performing first  
5 quantization by a first quantization scale, comprising:  
a quantization scale generation circuit for  
generating a second quantization scale based on the first  
quantization scale; and  
a quantization circuit for performing the second  
10 quantization on the data to be processed based on the  
second quantization scale generated by the quantization  
scale generation circuit.